

# CALIFORNIA STATE BOARD OF HEALTH

## MONTHLY BULLETIN

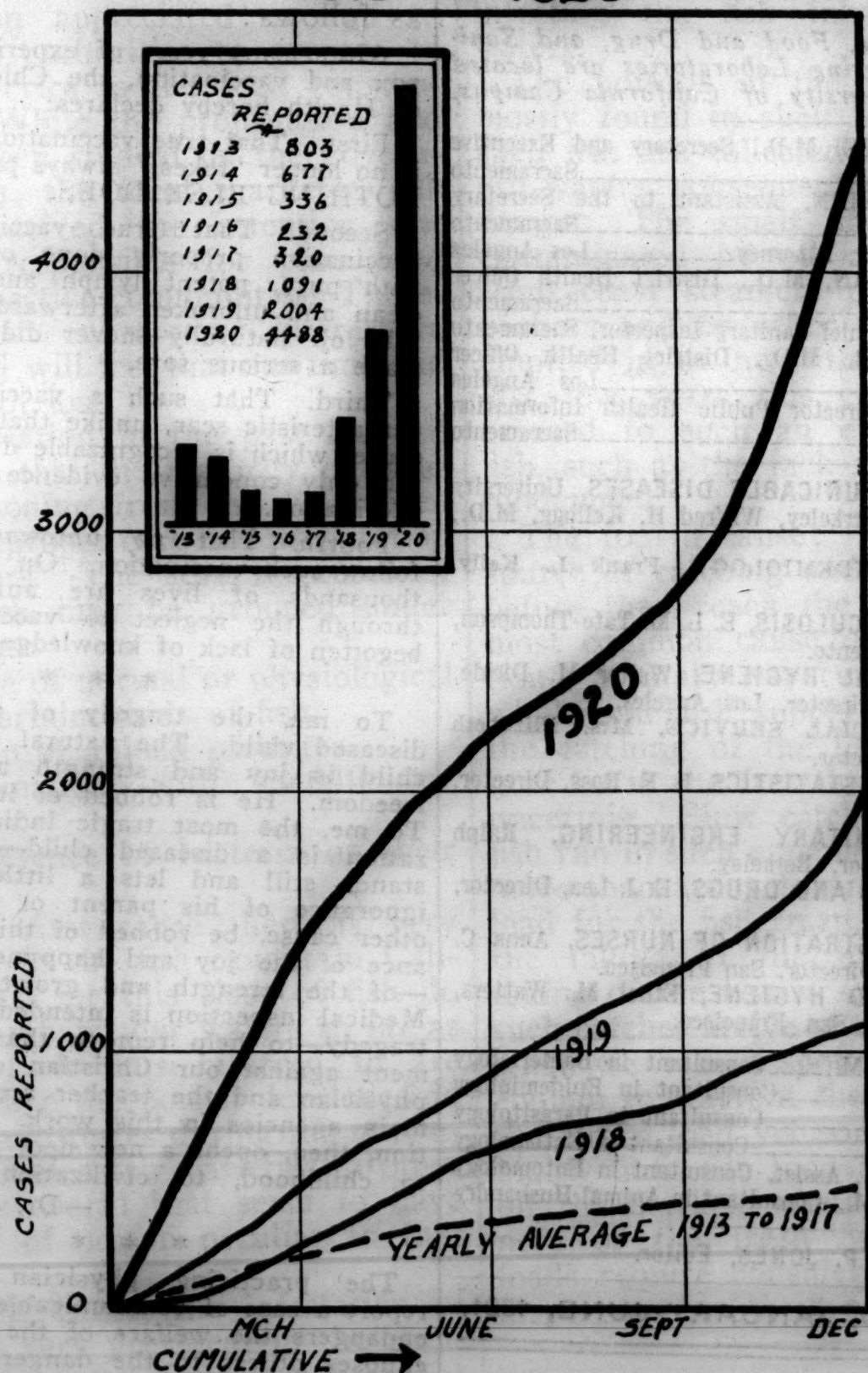
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### SMALLPOX

MORBIDITY FOR CALIFORNIA  
1913 TO 1920



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# CALIFORNIA STATE BOARD OF HEALTH MONTHLY BULLETIN

*A Journal for the Promotion  
of Public Health*

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SACRAMENTO, JANUARY-JUNE, 1921.

### In Praise of Water.

A toast to water, as proposed by a Southern colonel, was published in these columns a few months ago. The colonel soared high in his praise of water, only to fall in a resounding crash with his

final declaration, "as a beverage, it's a damned failure." We learn now that William Jennings Bryan has indulged in an oratorical flight in praise of water, extolling its high qualities as a beverage. It follows:

All hail to the drink of drinks—to water, the daily need of everything! It ascends from the earth in obedience to the summons of the sun, and descends in showers of blessings. It gives forth its sparkling beauty to the fragrant flowers; its alchemy transmutes base clay into golden grain; it is the radiant canvas upon which the finger of the Infinite traces the rainbow of promise. It is the beverage that refreshes and brings no sorrow with it. Jehovah looked upon it at Creation's dawn and said, "It is good."

\* \* \*

### Chicago's Smallpox Vaccination Creed.

The health department of the city of Chicago has a vaccination creed that is most direct in its simplicity. It reads as follows:

After many years of experience with smallpox and vaccination, the Chicago Department of Health hereby declares:

First. That true vaccination, repeated until it no longer "takes," always prevents smallpox. NOTHING ELSE DOES.

Second. That true vaccination—that is, vaccination properly done on a clean arm with pure, potent lymph and kept perfectly clean and unbroken afterwards until the scab falls off naturally—never did and never will make a serious sore.

Third. That such a vaccination leaves a characteristic scar, unlike that from any other cause, which is recognizable during life and is the only conclusive evidence of a successful vaccination.

Fourth. That no untoward results ever follow such vaccination. On the other hand, thousands of lives are annually sacrificed through the neglect to vaccinate, a neglect begotten of lack of knowledge.

\* \* \*

To me, the tragedy of this earth is a diseased child. The natural inheritance of a child is joy and strength and growth and freedom. He is robbed of it all by disease. To me, the most tragic indictment of civilization is a diseased child—civilization that stands still and lets a little child through ignorance of his parent or teacher or any other cause, be robbed of this divine inheritance of the joy and happiness of childhood—of the strength and growth of childhood! Medical inspection is intended to prevent that tragedy—to help remove that terrible indictment against our Christian civilization. The physician and the teacher are necessarily the main agencies in this work. Medical inspection, then, opens a new door of larger service to childhood, to civilization and posterity.

—Dr. J. Y. Joyner.

\* \* \*

The practicing physician who fails to report a case of communicable disease thereby endangers the welfare of the community and exposes others to the dangers of contracting the disease, and among those thus exposed may be others of his patients. He is neither a good physician nor a good citizen, and must be considered as opposed to the principle of the control of disease and the protection of the community for which the health department stands.—John W. Trask (United States Public Health Service).



# MONTHLY BULLETIN

## CALIFORNIA STATE BOARD OF HEALTH

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Vol. 16

SACRAMENTO, JANUARY—JUNE, 1921

No. 7-12

### INSPECTION OF FISH.\*

By L. M. POWERS, M. D., Health Commissioner, Los Angeles.

The necessity of inspecting food fish has not been appreciated enough to stimulate the authorities to prepare to give good service to the food consuming public. While the propagation and supply has been studied by the government officials, the local marketed fish have not received the attention due from those responsible for pure food for their respective communities. Therefore, if I can enlist your interest in this subject, I will feel that our time and efforts are not lost.

Our observation in the past has led us to believe that the majority of cases of food poisoning from fish have been due to the improper care and preparation for consumers. The several causes of poisonous fish may be grouped under four headings:

1. Presence of normal or physiological poisons in certain kinds of fish.
2. Infection of animal parasites.
3. Contamination with metallic or other poisons.
4. The presence of bacteria or their products.

From the first cause there is very little danger in the fish caught in California waters, for this class of fish do not seem to inhabit our waters so far as we know. Fish thus referred to are those that have the poison developed in the ovaries and testes during the spawning season, and a few varieties in other parts of the world that seem to have their forms of poison peculiar to that class of fish.

The second cause, the infestation of parasites, is very prevalent in the summer season in some kinds of fish caught off the southern coast, such as rock cod, rock bass, halibut, and so on. The most common form is a small, round, red worm infesting the flesh of the fish.

Occasionally a tapeworm may be found infesting the fish inhabiting polluted waters.

The poisons in the third cause are mostly found in shell fish and but few shell fish are collected from our southern waters, consequently this is a minor danger. The smelt and surf fish are contaminated by oil and other waste from coast steamers plying about our harbors and by other industrial wastes emptied in or near the ocean. In the last few years this condition has increased to such an extent that many fish, such as the jack smelt, have to be condemned.

The fourth cause: The manner and source of catching and handling of fish before they reach the consumer is the most common cause of bacterial infection. Sanitary supervision to insure a wholesome fish supply commences with the catching of the fish. Our troubles here lie in the fact that fish catches are uncertain. Slow catches, that is, when fish run in such a manner that it requires more than a day to procure a profitable load for the fisherman, the time between the taking of the first fish and the taking of the last is so great that when such catches arrive at the wharf we have what we call a spotted load, not bad enough to warrant the condemnation of the entire load yet some of the fish are highly unfit for food and must be kept off the market, whether from the canneries or the fresh fish market. Such loads require considerable work by the inspectors for their proper disposal.

#### Careful Inspection.

The inspection of fish after they have been brought to the shore is fraught with many difficulties. If the fish have

\* Read before the Health Officers Section, League of California Municipalities, at Chico Nov. 8 to 11, 1920.



been caught several hours before coming ashore, the condition is not easily ascertained, for the fish may be just on the verge of decay and there is not sufficient evidence to justify condemnation in order to stop the fish from going onto the market and later spoiling, perhaps in the hands of the consumer. If some plan of inspecting the fish boats while in action and the manner of handling the fish until brought ashore was a part of our system of inspection, the fish would be in better condition when first sold. The fishermen would then have to keep their fish in a better condition and not be satisfied simply to get rid of their catch. Few fish after being delivered on shore receive infection if the inspectors are diligent and know their business, for sanitary conditions can be maintained in the market and at the canneries; and we find that the fish handlers ashore are more careful on account of being held responsible and they also desire to maintain a wholesome market to increase trade.

### **Canneries Are Sanitary.**

The National Cannery Association has established at our harbor a system of inspection and investigation which is educational, with Dr. Norman Hendrickson as director, G. A. Lawrence as assistant director and L. G. Elliot as chemist. These gentlemen have been very successful in helping the health department in establishing and maintaining sanitary conditions at the canneries, and also in influencing better handling of fish from the time they are caught until delivery. The value of this system of investigation and inspection to the fish industry in southern California is inestimable, and we can not pass it without giving it the highest commendation. Their rules and regulations for canneries are exceptionally good, and generally enforced.

In the inspection of fish, the following points should be observed:

1. General appearance of fish.
2. The firmness, softness, etc., of the fish when handled.
3. Appearance of surface and scales.
4. Appearance of eyes.
5. Appearance of gills.
6. Smell.
7. Discoloration of ventral aspect of backbone.
8. Rigor mortis.
9. Manner in which the flesh strips away from the backbone, or the bone away from the flesh.
10. The appearance of the abdominal walls, as affected by the gut.

### **Growth of Industry.**

From an almost negligible position as a commercial fishery 20 years ago to the greatest fishing center on the globe at the present time is the history of our local fish industry.

In 1895 the first fish cannery was established in San Pedro for packing sardines. At that time ten small boats constituted the fishing fleet for supplying this cannery and then only at intermittent times when the market conditions would permit. The amount invested in the cannery at this time was about \$5000.

In 1903, 250 cases of tuna were packed as an experiment. It is well to remember that tuna at that time were not held in high esteem as edible fish; in fact, they were regarded as entirely unmarketable. In 1905 the tuna pack was 800 cases and in 1910 the output was 3500 cases.

These first 15 years were evidently an experimental period. The fish were here, but some method different from the method used in packing salmon had to be discovered, owing to the strip of dark meat which lies along the sides of tuna the full length of its body.

The species of fish spoken of as tuna include the white tuna, blue fin, albacore, and ship jack (striped tuna). Bonita, which packed in the same manner, is sold as bonita. Albacore, being the whitest and most delicious, commands the highest price. Beginning 15 years ago at the low price of \$30 per ton, the prices paid by the canners in the season just closed ranged from \$165 per ton for blue fin to \$250 per ton for albacore.

### **Millions In Industry.**

There are today operating in Los Angeles city 19 canneries with investments ranging from \$75,000 to \$1,000,000 each, representing an aggregate investment of more than \$5,000,000. The amount of fish brought into these canneries and six other canneries at Long Beach was more than 23,000 tons, at a wholesale value of more than \$4,000,000 to the fisherman.

To procure this vast amount of fish, there is operating a fleet of 410 boats, ranging from five tons to thirty tons capacity, representing an investment of more than \$4,000,000.

These above facts are only as regards the fish canneries. The total amount of fish brought into Los Angeles for all purposes in 1918 was 56,000 tons. Thus you can readily see that Los Angeles is by far the largest fishing center in the world. While the salmon pack is greater, the area covered is all the way from Sacramento to Alaska. The sanitary



control of such vast food supply constitutes no small problem.

Then the delivery of fish with evisceration. Fish should be bled and all viscera should be removed immediately after catching. However, this is almost impossible in many instances, notably on purse boats where the catch is so great as to crowd all available space, and again when the fish are of small varieties, such as sardines and smelt, the number being so great that to clean them on an open boat at sea is beyond reason.

#### **Disposal of Inferior Fish.**

Then comes the control of inferior fish for sale in open market, such as contaminated fish from polluted waters, like those taken from near the outfall sewer, and fish from inland sloughs, in which the waters in the long, dry season become polluted with decaying vegetable matter and later with decaying fish which die of the effects of filth of their own surroundings.

Prior to 1918 the law required all fish to be cleaned before their entry into the cannery. The intent of this law was to cause the fish to be eviscerated immediately after catching. But as a method of evasion the barges were anchored at the entrance to the harbor where the cleaning took place, thus the fish were brought in in compliance with the law. The only benefit under that law was the absence of fish offal inside the canneries. The shortening of time between catching and cleaning was perhaps less than an hour. So from a sanitary point of view the law was almost ineffectual. Because of the manner in which this law was evaded yet complied with, and of the great impracticability of its enforcement on

purse boats because of the lack of space and the great number of the smaller varieties of fish, this law was repealed.

#### **Sardines For Fertilizer.**

During 1918 the entire fishing fleet operated on sardines for fertilizer, which is accountable for the tremendous catch as before mentioned. This caused considerable annoyance to the health department as the amount of fish brought in exceeded the capacity of the reduction plants, and accompanied with the usual number of breakdowns of machinery in these places, the sanitary conditions at times were very unsatisfactory. Limited amounts were finally agreed upon, which relieved the situation, much to the satisfaction of all concerned.

The sanitary conditions surrounding the fish industry have improved correspondingly to the growth of the volume of business. Good buildings with proper facilities for sanitation have replaced the few old shambles which previously served as canneries. These new plants are equipped with proper drainage, screens, rest rooms, lavatories, drinking fountains, and fly traps. Only three establishments have wood floors, the remainder being cement.

The latest additions to the business is the use of the seaplane for locating schools of fish. This is a certain amount of benefit to the health department as it expedites the catches, consequently a shorter lapse of time between the taking of the fish and their delivery at the canneries.

In conclusion, the necessity of a patrol launch for inspection and supervision of the catching and handling of fish in a sanitary way and preventing the taking of fish from polluted waters is much needed.

## **NOTES ON A STUDY OF THE BACTERICIDAL ACTION OF SEA WATER.**

By E. A. REINKE, Assistant Engineer, Bureau of Sanitary Engineering.

During the fall of 1920, a series of analyses was made to determine the extent of the bactericidal action of sea water.

In general the results may be stated as follows:

(1) A marked increase in total count on agar occurred within 24 hours after inoculating fresh (tap) water, while a considerable reduction was noted with sea water at the end of 24 hours.

(2) No appreciable difference was noted when B. Coli were inoculated into sea or fresh water, even up to four days.

After a few preliminary studies, all fresh and sea water samples were first sterilized with  $15\frac{3}{4}$  steam pressure in an autoclave. Inoculations were made with shower bath drainage water from the Men's Gymnasium at the University of California, and with a B. Coli culture prepared in the laboratory. In one case a sewage sample was used for inoculation.

All samples were kept at room temperature ( $16^{\circ}$ - $20^{\circ}$  C.) with the exception of those shown in Table I. In that case a uniform temperature of  $37^{\circ}$  C. was maintained by keeping the sample in an incubator.



TABLE I.  
TOTAL COUNTS ON AGR. SAMPLE INOCULATED WITH SHOWER WATER.

	Time of plating after inoculation			
	5 min.	30 min.	1½ hrs.	20 hrs.
Sea -----	80	32	28	4
Fresh -----	150	60	77	25,000

TABLE II.  
TOTAL COUNTS ON AGR. SAMPLE INOCULATED WITH SHOWER WATER.

	Time of plating after inoculation				
	0	5 min.	30 min.	1½ hrs.	24 hrs.
Sea -----	80	90	55	45	40
Fresh -----	40	65	32	24	5,000

TABLE III.  
SAMPLE INOCULATED WITH SEWAGE.

	Time of plating after inoculation							
	5 min.	30 min.	1½ hrs.	20 hrs.	48 hrs.	72 hrs.	4 days	8 days
Total count on agar.								
Sea -----	500	400	380	280				
Fresh -----	520	460	400	16,000				
B. Coli								
Sea -----	2.5+	2.5+	2.5+	2.5+	2.5+	2.5+	2.5+	0.6
Fresh -----	2.5+	2.5+	2.5+	2.5+	2.5+	2.5+	0.6	0.25

TABLE IV.  
SAMPLE INOCULATED WITH B. COLI CULTURE.

	Time of plating after inoculation			
	0	½ hr.	3½ hrs.	6½ hrs.
Sea (from S. F. Bay) -----	580	600	700	480
Sea* (from Piedmont Baths) -----	620	560	280	20

\*Free chlorine present.

In the preliminary studies samples of water partly softened, completely softened and overdosed with lime water, were inoculated. No appreciable difference was noted between these softened waters and tap water. It appears that excess lime method is not feasible for disinfecting Berkeley tap water.

The results in Table III show a reduction in total count of about one-half in 24 hours with salt water. In Tables I and II an even greater reduction is shown.

In each case there is a marked increase at 24 hours with the fresh water samples.

A comparison of San Francisco Bay water and Piedmont Baths water (salt) is shown in Table IV. Free chlorine present in the water from Piedmont Baths probably accounts for the decrease in the heavy dose of B. Coli with which the samples were inoculated.

From these studies it would appear that no reliance is to be placed in the ability of the salt in sea water to serve as a disinfectant in maintaining desired elimination of dangerous bacteria in swimming pools. It may be concluded from these results that salt water prevents rapid increase of some forms of bacteria, but it does not cause rapid destruction, especially of the Colon Bacillus, which is a typical sewage form, as is desirable in swimming pool disinfection.



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 Chino.....Dr. Elgar Reed  
 Colton.....Dr. C. F. Whitmer  
 Needles.....Dr. A. E. Boland  
 Ontario.....Dr. S. P. S. Edwards  
 Redlands.....Dr. Kenneth L. Dole  
 Rialto.....Dr. L. P. Barbour  
 San Bernardino.....Dr. C. C. Owen  
 Upland.....E. R. Bowman

## San Diego County—

Dr. Louis Strahlman.....San Diego  
 Chula Vista.....Dr. F. E. Ashcroft  
 Coronado.....Dr. Raffael Lorini  
 East San Diego.....Dr. C. R. Carpenter  
 El Cajon.....Barlow Call  
 Escondido.....Dr. B. L. Crise  
 La Mesa.....Dr. C. Strite  
 National City.....Dr. Theo. F. Johnson  
 Oceanside.....Dr. H. F. Crandall  
 San Diego.....Dr. A. M. Lesem

## San Francisco (city and county)—

Dr. W. C. Hassler.....San Francisco

## San Joaquin County—

Dr. A. Cavagnaro.....Stockton  
 Lodi.....Dr. S. W. Hopkins  
 Manteca.....F. M. Roundtree  
 Stockton.....Dr. Linwood Dozier  
 Tracy.....Dr. Allen R. Powers

## San Luis Obispo County—

Dr. C. J. McGovern.....San Luis Obispo  
 Arroyo Grande.....Dr. S. E. Chapman  
 Paso Robles.....Wm. Ryan  
 San Luis Obispo.....W. F. Cook

## San Mateo County—

Dr. F. Holmes Smith.....San Bruno  
 Burlingame.....Lewis A. Cavalier  
 Colma.....Dr. F. Holmes Smith  
 Daly City.....Dr. A. H. Rankin  
 Hillsborough.....C. M. Hirschey  
 Redwood City.....Dr. J. E. Chapin  
 San Bruno.....Dr. F. Holmes Smith  
 San Mateo.....Dr. W. C. McLean  
 So. San Francisco.....Dr. J. C. McGovern

## Santa Barbara County—

Dr. G. S. Loveren.....Santa Barbara  
 Guadalupe.....Dr. W. D. Sink  
 Lompoc.....Dr. W. T. Talbott  
 Santa Barbara.....Dr. A. L. O'Bannon  
 Santa Maria.....Dr. W. T. Lucas

## Santa Cruz County—

Dr. Wm. H. Keck.....Santa Cruz  
 Santa Cruz.....Dr. W. R. Congdon  
 Watsonville.....Dr. A. W. Bixby

## Santa Clara County—

Dr. Wm. Simpson.....San Jose  
 Alviso.....Miss A. E. Ortleby  
 Gilroy.....Dr. J. W. Thayer  
 Los Gatos.....Dr. Blake Franklin  
 Mayfield.....Mrs. Elsie G. Roberts  
 Morgan Hill.....Dr. W. D. Miner  
 Mountain View.....Dr. A. H. MacFarlane  
 Palo Alto.....Louis Olson  
 San Jose.....Dr. H. C. Brown  
 Santa Clara.....Dr. G. W. Fowler  
 Sunnyvale.....M. J. McGinnes

## Shasta County—

Dr. S. T. White.....Redding  
 Kennett.....Dr. C. H. Haake  
 Redding.....E. A. Rolison

## Sierra County—

Dr. O. A. Eckhardt.....Downsville  
 Loyalton.....Dr. L. G. Ede

## Siskiyou County—

Dr. J. Roy Jones.....Yreka  
 Dorris.....Dr. A. A. Atkinson  
 Dunsmuir.....E. M. Akers  
 Etna.....Dr. W. H. Haines  
 Fort Jones.....T. J. Wayne  
 Montague.....Hugh W. French  
 Sisson.....Dr. Paul Wright  
 Yreka.....Dr. H. S. Warren

## Solano County—

Dr. W. C. Jenney.....Vacaville  
 Benicia.....Dr. Abbie Blodgett  
 Dixon.....H. G. Grove  
 Fairfield.....Dr. H. V. Clymer  
 Rio Vista.....L. H. Church  
 Suisun.....Dr. A. G. Bailey  
 Vacaville.....W. F. Hughes  
 Vallejo.....Dr. A. J. Klotz

## Sonoma County—

Dr. F. O. Pryor.....Santa Rosa  
 Cloverdale.....E. E. Gibbins  
 Healdsburg.....Dr. J. W. Seawell  
 Petaluma.....Dr. A. G. Lumsden  
 Santa Rosa.....Dr. Jackson Temple  
 Sebastopol.....Dr. Lafayette Wilson  
 Sonoma.....J. H. Albertson

## Stanislaus County—

Dr. J. L. Hennemuth.....Modesto  
 Ceres.....Albert Rich  
 Modesto.....Dr. J. W. Morgan  
 Newman.....Dr. H. V. Armistead  
 Oakdale.....R. L. Acker  
 Patterson.....Dr. Fred O'Lien  
 Turlock.....Dr. C. E. Pearson

## Sutter County—

Dr. W. L. Stephens.....Meridian  
 Yuba City.....Dr. J. H. Barr

## Tehama County—

Dr. J. A. Owens, Jr.....Red Bluff  
 Corning.....Dr. Caroline Howes  
 Red Bluff.....Dr. F. J. Balley  
 Tehama.....Dr. J. H. Belyea

## Trinity County—

Dr. David B. Fields.....Weaverville

## Tulare County—

Dr. A. W. Preston.....Visalia  
 Dinuba.....Dr. C. A. Tillotson  
 Exeter.....Dr. W. R. Tyler  
 Lindsay.....Dr. C. W. Locke  
 Porterville.....Dr. O. C. Higgins  
 Tulare.....Dr. J. B. Rosson  
 Visalia.....Dr. A. W. Preston

## Tuolumne County—

Dr. Wm. L. Hood.....Sonora  
 Sonora.....Dr. Wm. L. Hood

## Ventura County—

Dr. A. A. Maulhardt.....Oxnard  
 Fillmore.....Dr. Harold B. Osborn  
 Oxnard.....Dr. G. A. Broughton  
 Santa Paula.....Dr. Benj. E. Merrill  
 Ventura.....L. M. Wilson

## Yolo County—

Dr. Chas. E. Beebe.....Woodland  
 Davis.....Dr. W. E. Bates  
 Winters.....J. M. Goodyear  
 Woodland.....Dr. W. J. Blevins

## Yuba County—

Dr. J. H. Barr.....Marysville  
 Marysville.....Dr. Fred Tapley  
 Wheatland.....W. H. Niemeyer